

**Before the
Federal Communications Commission
Washington, DC 20554**

In the Matter of)	
)	
Location Based Routing for)	PS Docket No. 18-64
Wireless 911 Calls)	

May 7, 2018

COMMENTS OF LAASER CRITICAL COMMUNICATIONS

LaaSer Critical Communications (LaaSer) hereby submits the following comments in response to the Commission’s Notice of Inquiry (NOI) in the above-captioned proceeding.¹

LaaSer Critical Communications is dedicated to solving the problems associated with contacting emergency services from mobile devices. LaaSer has created patented technology that pinpoints a 911 caller’s location using any mobile device, efficiently routes them to the appropriate Public Safety Answering Point (PSAP), and provides the emergency operator and responders with precise location information. LaaSer’s technology works seamlessly with existing cellular provider and public safety networks and systems, in both legacy and next generation 911 (NG911).

¹ Location-Based Routing for Wireless 911 Calls, PS Docket No. 18-64 *Notice of Inquiry*, FCC 18-64 (rel. March 23, 2018) (“NOI”).

The Commission seeks comment on the frequency of “misroutes,” the impacts of those “misroutes,” as well as the “best way to avoid delay in the response to some wireless 911 calls that results from the manner in which such calls are routed in the current 911 system.”²

LaaSer presents these initial comments focused on those three areas, and will provide additional detail in a subsequent NoI reply.

How Frequent are “Misroutes?”

As noted in the NoI and elsewhere, determining the total number or percentage of 911 calls that are impacted by this situation is very difficult to determine on a national scale. In order to have a definitive number, one would need to record each transfer in or out of all PSAPs while also noting that the transfer was due to a “misroute” and not some other operational or administrative reason. And, unfortunately because “misroutes” have become such an accepted part of the 911 environment, most PSAPs do not appear to track these transfers consistently. Some PSAPs and regional or state coordinating bodies have conducted studies, some of which were referenced in the NoI³, that show “misroute” frequency of 20% of total calls or more. Anecdotally, through discussions with a wide range of public safety practitioners, we believe the number to be in the low-to-mid-teens as a total percentage of calls. LaaSer is actively participating with multiple peers and partners to analyze available data to approximate as closely as possible what the national occurrence is. We expect those results to be presented in one or more comments and replies to this NoI.

² Ibid, Introduction, Section 1

³ PS Docket No. 18-64 *NoI*, notes 2, 4.

What are the Impacts of “Misroutes?”

Unfortunately, the impacts of “misroutes” tend to be tragic. Many of the stories of lives lost or callers having more negative outcomes than they might have had otherwise involve a call that had to be transferred – in some cases, multiple times. For that reason, the actual percentage of calls that are impacted by the “misroute” situation is almost inconsequential to the real impact that any given “misroute” may have. In the life and death reality of 911, misroutes cost time, and time costs lives. A disproportionate percentage of negative outcomes on 911 calls were calls where a transfer was necessitated between PSAPs. Thus, the impacts of “misroutes” are better understood than the frequency because the impacts can be, and often are, catastrophic, making “misroutes” top of mind for many in the public safety community. Our sense of public safety practitioners generally is that the negative impacts of “misroutes” are so great, that there is a stronger hunger for improved routing of 911 calls than almost any other issue facing the 911 system. The negative impacts of “misroutes” are so great that a meaningful improvement in accurate routing would have an outsized positive impact on first responders in the PSAP and in the field, and most importantly on the lives of callers.

What is the Best Way to Avoid Delays Caused by “Misroutes?”

The work of the Communications Security, Reliability and Interoperability Council V (CSRIC V) Working Group 1 (WG1) was very thorough and informative in this area. In general, we concur with large portions of WG1’s Task 2 Final Report,⁴ especially with regard to holding the call for Phase 2, interim or quick fix, registered address, and emerging technologies. We

⁴ Communications Security, Reliability and Interoperability Council V, Working Group 1, Evolving 911 Services, Final Report – Task 2: 911 Location-Based Routing (Sep. 2016), https://transition.fcc.gov/bureaus/pshs/advisory/csric5/WG1_Task2_FinalReport_092016.docx (*CSRIC V LBR Report*).

believe that there is more promise and more detail available at this point than at the time of the report's drafting regarding device-based hybrid (DBH) technologies for use in routing than was reflected in the Task 2 Final Report.

We have conducted numerous tests and field trials of our own technology and other DBH systems with wireless carriers and their service provider partners, public safety entities, and independently. The results include some notable data:

- We found that the “5 seconds or less”⁵ figure cited by CSRIC V WG1 for the Phase 1 routing decision at the MSC is likely more generous than in reality. We believe the it is much more frequently in the “or less” category, more often happening in 2 seconds or less, making it even more challenging for DBH – or any methodology – to have a positive impact.
- There are ways to integrate DBH technology with wireless carrier's existing systems such that it is less of a paradigm shift from current carrier control plane methods than previously believed.⁶
- Implementation of certain on-device strategies, that still respect the battery usage, data usage, and privacy of the device owner, allows for DBH location determination considerably faster than the “typically ~5 seconds” reflected in WG1's report.⁷
- While commercial location technologies⁸ can provide benefit and improvement in terms of both timing and uncertainty, they were not designed for use within public safety environments. Because various commercial location determination methodologies report their own confidence and uncertainty, public safety systems

⁵ CSRIC V LBR Report at 1.1.

⁶ CSRIC V LBR Report at 7.4.

⁷ Ibid, “Pros” first bullet.

⁸ Ibid, “Pros” second bullet.

which expect consistency in those regards may not deal with commercial location appropriately. Much as wireless carrier systems currently evaluate various location providers before providing location, confidence, and uncertainty to downstream public safety systems, results determined by commercial location systems need to be evaluated against other potential results, normalized with regard to confidence, and rationalized against control plane information for a given call.

- An appropriately implemented DBH system designed for use with public safety can – and should – provide visibility into the methodologies and data sources used in the location determination process and should be normalized against existing wireless carrier location determination methodologies.
- DBH determined locations can – and should – be validated against not only service cell sector, but also various exogenous data known either to the serving wireless carrier, their service provider partners, and/or the DBH system itself.

Based on the above points and other findings to be detailed in a subsequent NoI reply, we believe that the answer to the question “what is the best way to avoid delays” caused by “misroutes” is inclusion of DBH location within the existing wireless carrier routing systems. Such a deployment leverages the best of what DBH has to offer, ensures that routing improvements are only ever additive with existing systems providing a consistent and reliable base level of performance, allows for ubiquitous PSAP availability, and is available in current-state environments, NG911 environments, and transitional environments.

Conclusion

LaaSer welcomes the launch of this comprehensive inquiry into location-based routing capabilities. The same vigor and attention being applied to improving wireless 911 location generally, and to deploying NG911, should be directed at location-based routing. We believe that following receipt of the comprehensive information and data sought in this NoI, the Commission should initiate a Notice of Proposed Rulemaking to establish rules requiring location-based routing capabilities that both meet the needs of 911 professionals and consumer expectations.

Respectfully submitted,

LaaSer Critical

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